

# NEWSLETTER

**LPD Lab Services**

TEL: +44 (0)1254 676 074

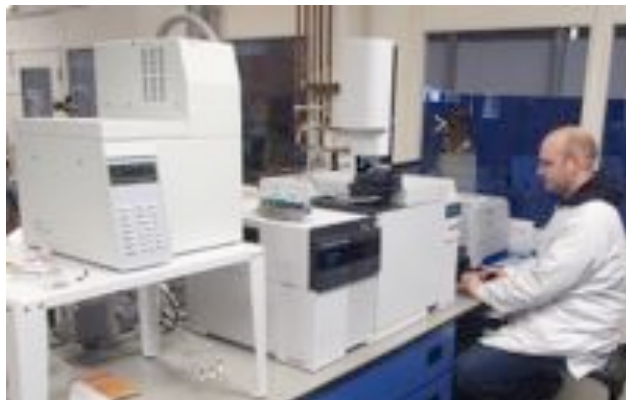
**One-Stop Shop for Industrial Process Problem Solving, Consulting and Routine Analysis**

## New GC-MS & Headspace Capability

In January 2014, the laboratory took delivery of a brand new Agilent GC-MS (5977E) with an auto-sampler for both direct injection of organics or solvent digested polymers and organic compounds. It also has a separate headspace system which allows volatile and semi-volatile species to be identified from their organic fingerprints with isothermal temperatures up to 200°C.

This extends the lab's existing GC-FID and FTIR capabilities for the analysis of organic materials and chemicals. The equipment is already providing many of LPD's customers with valuable information and interpretation.

The headspace equipment is ideal for analysis of unknown or dirty samples, but can also be used to identify adhesives, paints and polymers; from low molecular weight species, degradation fragments and extractables, leachables and mould release agents. Typically loss of plasticizers and stabilisers or lack of them in a product can change the mechanical properties of a plastic or rubber and chain scission alters the nature and levels of low molecular weight species; all of which GC-MS can diagnose.



## ICP-MS, AAS and XRF Composition Analysis

LPD now has a wide range of tools to characterise the composition of a diverse range of materials. Techniques are available that can provide customers with a variety of information; from estimates of percentage compositions right down to accurate determination of trace elements at ppb level.

### ICP-MS (Inductively Coupled Plasma Mass Spectroscopy)

The acquisition of a Perkin Elmer Elan 6000 ICP-MS late last year allowed the lab to achieve higher quantitative sensitivities for trace element analysis in the ppb range and in some cases ppt. Elements with atomic mass 7amu (Lithium) to 238amu (Uranium) can be accurately quantified. For samples with unknown species, a multi-element survey analysis can be performed.

### AAS (Atomic Absorbance Spectrophotometry)

For materials where only a few species are of interest and the concentrations are higher (ppm), LPD can offer analysis by AAS. Similar to ICP-MS samples are analysed as liquids. For solid samples bespoke digestion methods are used to dissolve samples for analysis.

### XRF (X-Ray Fluorescence)

XRF is a cost effective multi-element quantified analysis technique for determining the concentration of elements from Boron upwards in the periodic table. Once calibrated, XRF has the advantage of producing accurate composition data without the detailed sample preparation needed by ICP-MS or AAS. It is frequently applied directly to metals and materials with a homogeneous composition and LPD has a wide range of standards covering a variety of metals. It can measure concentrations as low as the ppm level. Minimal sample preparation effort can make the use of XRF for routine testing cost effective.

XRF can also be used in a semi-quantitative fashion to provide guide compositions for complete unknown chemicals and materials without the need for calibration or complex sample preparation. This can often provide enough evidence to determine the source of a material or powdered chemical. It also provides guidance to what other techniques might be needed for follow-up absolute quantitative analysis.

## Introducing Another New Member of Staff



LPD Lab Services Ltd welcomes a new member to its team. Dr Justyna Anwar has joined LPD after recently completing her PhD at Manchester University where she was studying the corrosion behaviour of magnesium alloys. Her original degree was in Forensic Chemistry at Manchester Metropolitan University and so she brings with her a wide range of knowledge spanning materials investigations to chemical analysis.

She has experience in a wide array of analytical techniques including: Scanning Electron Microscopy (SEM), corrosion and electrochemical testing plus a range of analytical techniques such as AAS, HPLC, GC and UV spectroscopy.

Already, Justyna has been involved in a wide variety of work. This includes surface analysis investigations using XPS and detailed surface tension and surface wetting measurements. She will enhance the problem solving and reverse engineering service that LPD can offer its diverse range of clients.

## Contact Us

**Laboratory Hotline:** +44 (0) 1254 676074e: [enquiries@lpdlabservices.co.uk](mailto:enquiries@lpdlabservices.co.uk)w: [www.lpdlabservices.co.uk](http://www.lpdlabservices.co.uk)